

OBSERVATIONS ON THE SAND DUNE CHINCH BUG
BLISSUS MIXTUS BARBER
(Lygaeidae Hemiptera)

BY BARBARA PRENDERGAST
California Academy of Sciences

According to early reports on the true chinch bug, *Blissus leucopterus* Say, this notorious insect occurred scantily in the Pacific States, although it has never been reported as destructive west of the Rocky Mountains. Webster ("The Chinch Bug," U.S.D.A. Cir. no. 113, 1909) reports the chinch bug from the coast and the central valleys of California, but no specimens from the Sacramento or San Joaquin valleys are available in western collections, and the experience of collectors would indicate that *Blissus* is limited to sand dune areas along the coast, at least in northern California.

In 1939, Barber clarified the taxonomic status of the various forms of *Blissus* occurring in the United States. He described the coastal California species as new (Proc. Ent. Soc. of Wash., v. 39, No. 4, 1937, p. 85), basing it upon a small series of brachypterous specimens only.

Blissus mixtus Barber appears to be very abundant in the sand dune areas along the Pacific Coast of the San Francisco peninsula. Colonies were observed at weekly intervals during a year's time. The host plant is *Ammophila arenarius* (determined by Alice Eastwood), a beach grass which grows abundantly in this vicinity. The grass was introduced by seed from Europe to prevent the sand from shifting.

The bugs are gregarious, occurring in large numbers on particular plants, and appearing to skip other clumps of the same grass entirely. They live near the roots and among the sheaths of the stems and seem to occur only on rather dry plants. It is difficult to distinguish the bugs from debris and sand, especially beneath the roots, since the adults are nearly identical in color with damp sand. In addition, they have a tendency to feign death when disturbed. It is only when they wriggle into activity that they may be readily detected and captured. During all seasons of the year bugs were found abundantly.

It was interesting to note the presence of first instar nymphs in the sand dunes early in January. Since the egg stage lasts

about a month under laboratory conditions, a field generation must begin about the first of December.

Several attempts to culture the species in the laboratory failed, although the technique described by Janes (Ann. Ent. Soc. of Amer., v. 28, No. 1, pp. 109-120) for the true chinch bug was followed. Colonies were established on the host plant but not on wheat and barley, although cultures were maintained on these plants long enough to indicate that the bugs are probably not of economic importance to them.

Coupling pairs were closely observed in vials. After an interval of one month, a single egg was laid in each case. After the lapse of another month, the eggs hatched. The first instar nymphs were pale pinkish, changing to red. With each successive moult the color became darker and more brownish, finally attaining the drab infuscation of the adult.

The most significant biological facts observed were: 1) that the ratio of brachypterous to macropterous forms was about equal; 2) that *Blissus mixtus* does not migrate, nor does it hibernate during the winter months; 3) that there are three generations each year in contrast to the two generations so typical of *Blissus leucopterus* Say.

In conclusion the writer suggests as a possible explanation for the absence of a migration and hibernation period in the life of *Blissus mixtus*, the ecological uniformity and an abundance of the host plant in the area in which this species occurs. In view of the fact that this period is not taken up by such a process, production of an additional generation is probably induced at this time.

TYPES OF APTEROUS ARADIDÆ

Dr. Oscar Monte of the Instituto Biologico de Sao Paulo, Brazil, sent a valuable collection of Brazilian Aradidae for study with the understanding that the types of new species would be deposited in the collection of the Instituto Biologico.

In my recent paper on apterous Aradidae (Pan-Pac. Ent. 17: 169-181, 1941) the types of *Notoplocoris montei* and *Emydocoris testudinatus* were inadvertently given type numbers in the collection of the California Academy of Sciences. These types have now been returned to the Instituto Biologico de Sao Paulo.—
R. L. USINGER.